REMARKS/ARGUMENTS

Upon entry of this amendment, which amends claims 1, 4-5, 8-10, 13, and 17-20, claims 1-20 remain pending. In the Office Action, claims 1-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Fraser (U. S. Patent No. 6,907,598) in view of Santhanam (U.S. Patent No. 5,704,053); claims 13-19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Santhanam in view of Fraser; and claim 20 was rejected under 35 U.S.C. §102(e) as being anticipated by De Oliveira Kastrup Pereira et al (U.S. Patent No. 6,721,884, hereinafter "De Oliveira"). Claims 11-12 were objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Applicants respectfully request reconsideration of the claims in view of the amendments above and remarks below.

Allowable Subject Matter

Applicants thank the Examiner for the indication of allowable subject matter.

Claim Rejections

Claims 1-12

Claim 1 was rejected under U.S.C. §103(a) as being unpatentable over Fraser in view of Santhanam. Applicants submit that Fraser and Santhanam, either alone or in combination, do not disclose or suggest every element of claim 1, as amended. For example, Fraser and Santhanam, either alone or in combination, fail to disclose or suggest inserting an explicit caching instruction in the set of instructions before the identified instruction, wherein the explicit caching instruction associates the identified instruction with at least one index value, the at least one index value referencing an area of an instruction storage unit; and replacing the at least one instance of the frequently-executed instructions subsequent to the explicit caching instruction with a compressed instruction referencing the at least one index value, wherein the frequently-executed instruction is accessible from the instruction storage unit using the at least one index value.

Fraser discloses an echo instruction. The echo instruction is a pointer to a previous group of instructions that are repeated in the instruction set. As shown in Fig. 4, lines 13-16 of the instruction set are repeated in lines 18-21. An echo instruction point to line

13 and includes the number of instructions after the line that are included in the group that is repeated. Thus, the echo instruction references lines 13-16 and is inserted in line 18 in place of instructions 18-21. Applicants submit that this does not disclose or suggest an explicit caching instruction that associates the identified instruction with at least one index value where the at least one index value references an area of a cache. Rather, Fraser discloses an echo instruction that references a prior instruction in the instruction set.

Santhanam is cited as disclosing a pre-fetching instruction that is placed in the instruction sequence before the loop instructions. Santhanam uses the pre-fetching instruction to retrieve data that is not likely to be found in the cache from memory. *See Santhanam*, col. 6, lines 1-6. Applicants submit that Santhanam does not disclose or suggest wherein the frequently executed instruction is accessible from the instruction storage unit using the at least one index value. Rather, Santhanam is directed towards pre-fetching data needed for the instruction set but does not disclose or suggest fetching instructions from the instruction set.

The combination of Fraser and Santhanam, as disclosed in the Office Action, states that Santhanam teaches inserting an instruction to ensure that compressed code would be available in the cache when the compressed instruction is encountered in the program, which would have required retrieval of the uncompressed code and would have reduced the time taken to retrieve the code when the code was not in the cache. However, Applicants submit that the outcome of the combination of Fraser and Santhanam is deficient. First, Fraser and Santhanam do not disclose or suggest storing any instructions from the instruction set being executed in cache. Rather, in Fraser, the reference is made to previous instructions that are repeated and in Santhanam, data for the instructions is fetched. There is no suggestion in Fraser that the previous instructions in the instruction set that are repeated are stored in cache. Also, Santhanam is directed towards retrieving data from memory and storing it in cache. Nowhere is it disclosed or suggested in Santhanam that an instruction from the instruction set is retrieved and stored at an index value referencing an area of the cache where an instruction is accessible from the cache using the index value.

Accordingly, the combination of Fraser and Santhanam may insert an echo instruction in the instruction set for repeated instructions and may insert a prefetch instruction to retrieve data from memory for the cache before execution of the instructions. However, the combination does not disclose or suggest storing the frequently executed instruction in cache. Accordingly, the combination of Fraser and Santhanam does not disclose or suggest inserting an explicit caching instruction before the identified instruction that associates the

identified instruction an index value referencing an area of an instruction storage unit and replacing the identified instruction with a compressed instruction referencing the index value, wherein the frequently-executed instruction is accessible from the instruction storage unit using the index value.

Accordingly, applicants respectfully request withdrawal of the rejection of claim 1. Claims 2-12 depend from claim 1 and thus derive patentability at least therefrom. Accordingly, applicants respectfully request withdrawal of the rejections of claims 2-12.
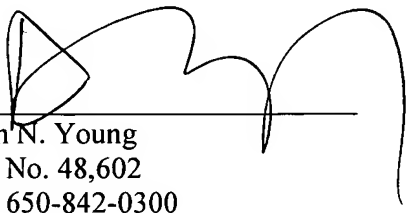
Claims 13-20

Applicants submit that claims 13-19 should be allowable for at least a similar rationale as discussed with respect to claim 1. For example, claim 13 recites when the primary instruction is a compressed instruction, retrieving, from the instruction storage unit, the at least one previously- stored instruction using the compressed instruction and executing the at least one previously- stored instruction. Claims 14-19 depend from claim 13 and thus derive patentability at least therefrom.

Applicants submit that claim 20 should be allowable for at least a similar rationale as discussed with respect to claim 1.

Applicants respectfully submit that the present claims are in condition for allowance and an early Notice of Allowance is earnestly sought. The undersigned may be contacted at the telephone number below at the Examiner's convenience if it would help in the prosecution of this matter.

Respectfully submitted,

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